Abstract:
In the field of marine composite structures, dynamic events such as slamming loading or underwater blast are likely to generate various damage in the materials [Mouritz 1996]. In the context of the project SUCCESS, composite plates have been tested under high velocity gelatine impact tests [Alleys et al. 2017] in order to reproduce similar damage depending on the impact energy [Barlow and Dorival 2019].

This proposal is about the experimental characterization of the damage in the composite structures before and after impact tests. The aim is to provide the partners with the remaining stiffness and strength of the specimen.

Work:

The aim of the project proposed is to perform the experimental tests and/or the analysis of the tests (depending on the progress in the project). The tests consist of both quasi-static and low velocity (drop-weight) tests.

The results must be analysed in comparisons with the impact tests performed. The influence of the dynamic loading on the remaining stiffness and strength is based on a super-element approach that is developed by the partners of the project [Brochard et al. 2018].

The project involves mainly experimental work, experimental post-treatment, but eventually may requires numerical simulation in order to investigate the identification of the model parameters.

References:


Barlow G., O. Dorival, 2019 Damage on laminate and sandwich composites under gelatine medium velocity impact tests, submitted to 21th Journées Nationales des Composites, 1-3 July 2019, Bordeaux, France.